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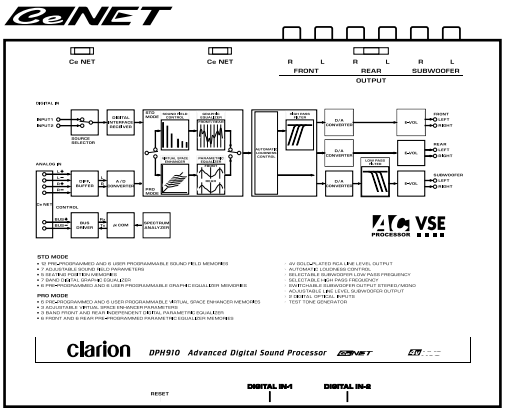
Service Manual



DIGITAL GRAPHIC & PARAMETRIC EQUALIZER/DSP/CROSSOVER PROCESSOR MODULE

Model DPH910
(GP-976B / FOR U.S.A.)

Model DPH913
(GP-976E / FOR EUROPE)

■ SPECIFICATIONS

S/N retio:	107dB(digital input)
	83dB(analogue input)
Frequency response:	10Hz to 20kHz(±1dB)
Separation:	100dB(digital input)
	80dB(analogue input)
Harmonic distortion:	0.006%(digital input,1kHz)
	0.006%(analogue input,1kHz)
Voltage gain:	2.5dB(volume max. 4V pre-out)
Analogue input:	1.5VRMS(max.)
Digital input:	44.1kHz sampling frequency,
	16-bit digital audio data
A/D conversion:	20-bit linear, 64 times oversamping
D/A conversion:	24-bit linear, 128 times oversamping
DSF:	BASIC 12 modes
	USER 6 modes
Graphic Eq.(7bands):	BASIC 6 modes
	USER 6 modes
Virtual Space Eq.:	BASIC 6 modes
	USER 6 modes
Parametric Eq.:	3 bands x 2(independent front/rear)
	Centre freq. 20Hz to 20kHz,
	1/3 octave steps, 31 points
	Q curve 1 to 20
	Gain ±12dB
	Preset 6 types
Auto loudness:	on/off
Subwoofer:	Voltage gain +12dB
	(max.woofer volume)
	LPF fc
	Through,50Hz,80Hz,120Hz
	LPF Slope 24dB/oct
Front/Rear:	HPF fc
	Through,50Hz,80Hz,120Hz
	HPF Slope 18dB/oct
Power supply voltage:	DC14.4V(10.8 to 15.6V)
	negative ground
Power consumption:	560mA
Dimentions(mm):	230(W)x25(H)x170(D)
Weight:	0.95kg

※ Specification and design are subject to change without notice for further improvement.

■ COMPONENTS

GP-976B-51/GP-976E-51

Main unit	–––––	1
Nameplate	287-1676-00	1
Ground lead	850-2715-00	1
CeNET cable	855-3421-00	1
RCA cable	855-8500-00	2
Parts bag	–––––	
Mounting bracket	300-7362-00	2
Cord clamp	335-0833-01	2
Canoe clip	335-2515-00	4
Cable clip	335-3744-00	1
Machine screw(M4X8)	714-4008-80	4

■ NOTE

We cannot supply PWB with component parts in principle. When a circuit on PWB has failure , please repair it by component parts base. Parts which are not mentioned in service manual are not supplied.

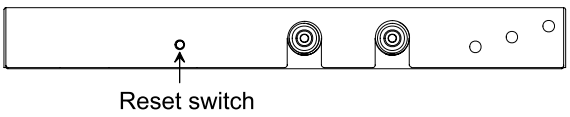
■ To engineers in charge of repair or inspection of our products.

Before repair or inspection, make sure to follow the instructions so that customers and Engineers in charge of repair or inspection can avoid suffering any risk or injury.

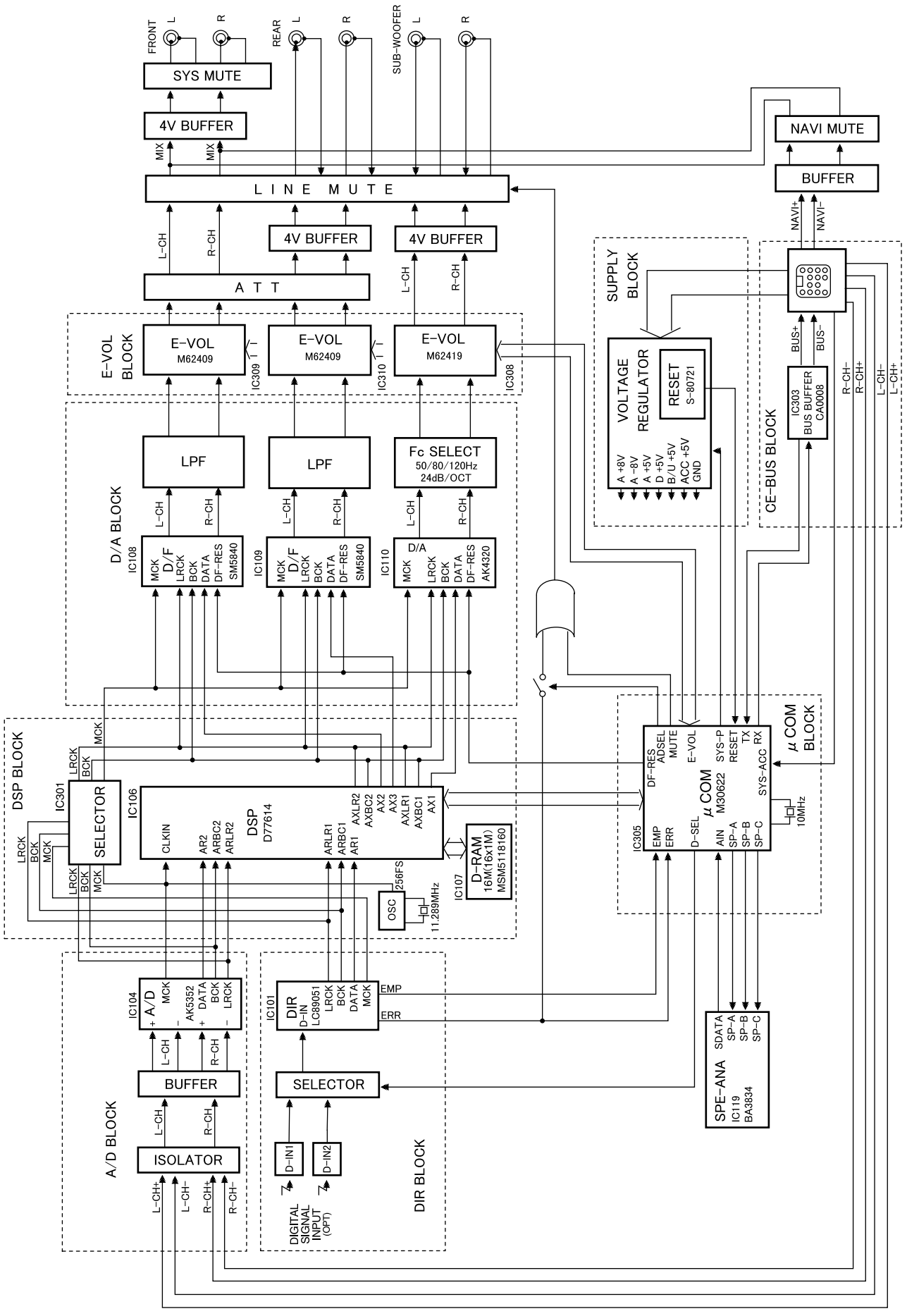
1. Use specified parts.
   The system uses parts with special safety features against fire and voltage. Use only parts with equivalent characteristics when replacing them.
   The use of unspecified parts shall be regarded as remodeling for which we shall not be liable. The onus of product liability (PL) shall not be our responsibility in cases where an accident or failure is as a result of unspecified parts being used.
2. Place the parts and wiring back in their original positions after replacement or re-wiring.
   For proper circuit construction, use of insulation tubes, bonding,gaps to PWB, etc, is involved. The wiring connection and routing to the PWB are specially planned using clamps to keep away from heated and high voltage parts. Ensure that they are placed back in their original positions after repair or inspection.
   If extended damage is caused due to negligence during repair, the legal responsibility shall be with the repairing company.
3. Check for safety after repair.
   Check that the screws, parts and wires are put back securely in their original position after repair. Ensure for safety reasons there is no possibility of secondary ploblems around the repaired spots.
   If extended damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.
4. Caution in removal and making wiring connection to the parts for the automobile.
   Disconnect the battery terminal after turning the ignition key off. If wrong wiring connections are made with the battery connected, a short circuit and/or fire may occur. If extensive damage is caused due to negligence of repair, the legal responsibility shall be with the repairing company.
5. Cautions regarding chips.
   Do not reuse removed chips even when no abnormality is observed in their appearance. Always replace them with new ones. (The chip parts include resistors, capacitors, diodes, transistors, etc). The negative pole of tantalum capacitors is highly susceptible to heat, so use special care when replacing them and check the operation afterwards.
6. Cautions in handling flexible PWB
   Before working with a soldering iron, make sure that the iron tip temperature is around 270℃. Take care not to apply the iron tip repeatedly(more than three times)to the same patterns. Also take care not to apply the tip with force.
7. Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

■ RESET SWITCH

When no sound is heard,press this switch.
Pressinng the reset switch performs the system check.



■BLOCK DIAGRAM



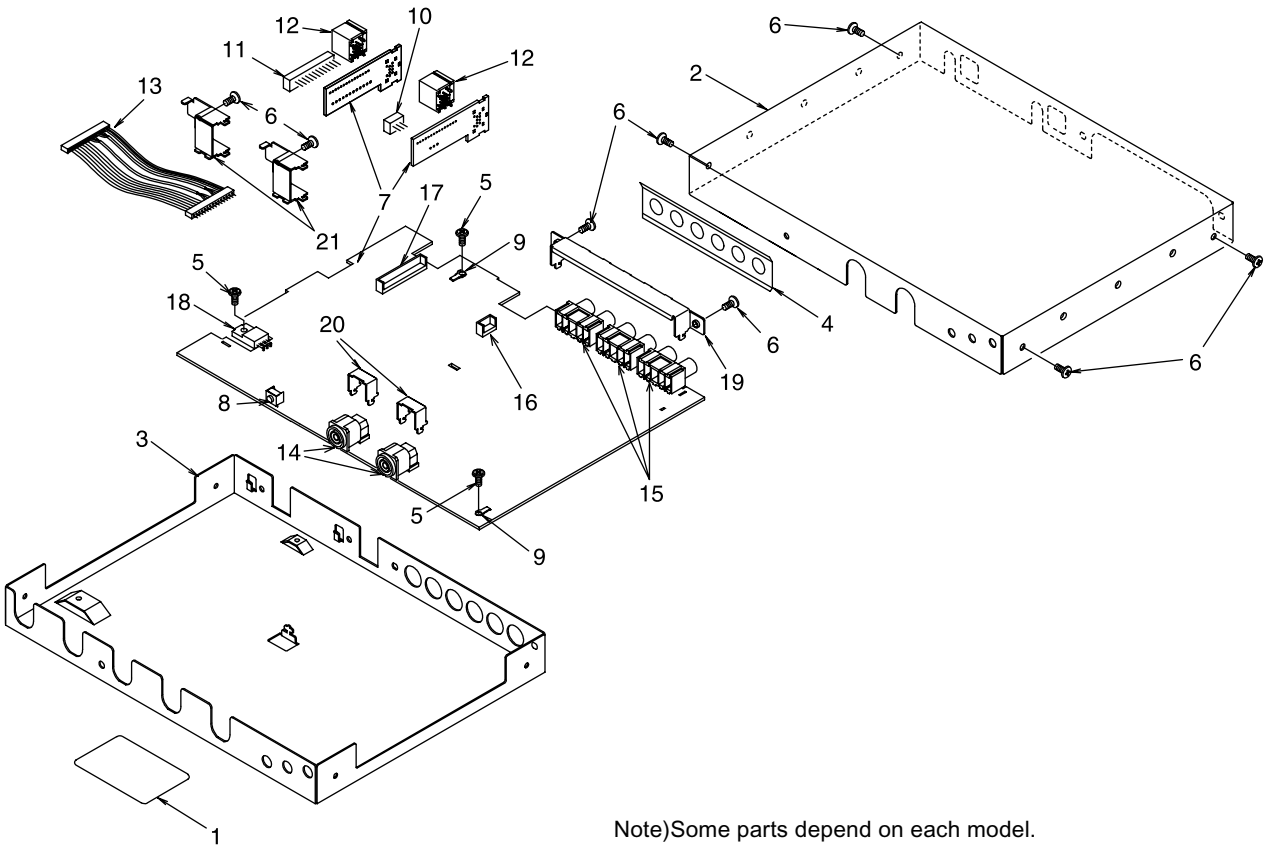
■EXPLANATION OF IC

052-7058-00 M30622MCA-E70FP DSP System Controller

1.Terminal Description

pin 1: NU : - : Not in use.
pin 2: D SEL 1 : O : Digital input selection.
pin 3: D SEL 2 : O : Digital input selection.
pin 4: D OFF : O : Digital input OFF = "H".
pin 5: EMPH : IN : The emphasis flag input.
pin 6: DIR ERR : IN : The digital-audio-interface-receiver error detection flag input.
pin 7: NU : - : Not in use.
pin 8: BYTE : IN : The data length selection(8bit/16bit).
pin 9: CN VSS : IN : Inputting "L" at single mode operation.
pin 10: NU : - : Not in use.
pin 11: NU : - : Not in use.
pin 12: RESET : IN : Reset signal input.
pin 13: X OUT : O : Crystal connection.
pin 14: VSS : - : Negative supply voltage.
pin 15: X IN : IN : Crystal connection.
pin 16: VCC : - : Positive supply voltage.
pin 17: NMI : IN : Not in use.
pin 18: SYS ACC : IN : ACC detect signal input.
pin 19: B/U DET : IN : Backup voltage ON signal input.
pin 20: NU : - : Not in use.
pin 21: NU : - : Not in use.
pin 22: NU : - : Not in use.
pin 23: NU : - : Not in use.
pin 24: NU : - : Not in use.
pin 25: NU : - : Not in use.
pin 26: NU : - : Not in use.
pin 27: NU : - : Not in use.
pin 28: NU : - : Not in use.
pin 29: RX : IN : Serial data input from Ce-NET.
pin 30: TX : O : Serial data output to Ce-NET.
pin 31: Band Sel 3 : O : Spectrum analyzer band selection.
pin 32: Band Sel 2 : O : Spectrum analyzer band selection.
pin 33: Band Sel 1 : O : Spectrum analyzer band selection.
pin 34: NU : - : Not in use.
pin 35: NU : - : Not in use.
pin 36: NU : - : Not in use.
pin 37: NU : - : Not in use.
pin 38: NU : - : Not in use.
pin 39: NU : - : Not in use.
pin 40: NU : - : Not in use.
pin 41: NU : - : Not in use.
pin 42: NU : - : Not in use.
pin 43: NU : - : Not in use.
pin 44: NAVI IN : O : Navigation audio signal interrupt flag output.
pin 45: NU : - : Not in use.
pin 46: NU : - : Not in use.
pin 47: EMPTY : IN : The acceptable flag input for the DSP data transmission.
pin 48: NU : - : Not in use.
pin 49: HR : O : The serial data output to the DSP IC.
pin 50: HR BCK : O : The bit clock output to the DSP IC.
pin 51: HRS : O : The shift clock output to the DSP IC.
pin 52: D CS : O : The chip selection signal output to the DSP IC.
pin 53: D RESET : O : The reset pulse output to the DSP IC.
pin 54: D MUTE : O : The mute command output to the DSP IC.
pin 55: SYS MUTE : O : System mute signal output.
pin 56: ATT : O : Attenuation command output.
pin 57: LINE MUTE : O : Audio mute signal output.
pin 58: AD SEL : O : Input selection. Analog/Digital.
pin 59: DF RES : O : Reset pulse output to ADC-IC and DF-IC.
pin 60: NU : - : Not in use.
pin 61: NU : - : Not in use.
pin 62: VCC : - : Positive supply voltage.
pin 63: NU : - : Not in use.
pin 64: VSS : - : Negative supply voltage.
pin 65: NU : - : Not in use.
pin 66: NU : - : Not in use.
pin 67: NU : - : Not in use.
pin 68: VOL S : O : Serial data output to the electric volume IC. (for the sub woofer)
pin 69: VOL CKS : O : Clock pulse output to the electric volume IC. (for the sub woofer)
pin 70: VOL F : O : Serial data output to the electric volume IC. (for the front signal & the rear signal)
pin 71: VOL CLOCK : O : Clock pulse output to the electric volume IC. (for the front signal & the rear signal)
pin 72: VOL STB : O : Strobe pulse output to the Electric volume or the digital-audio-interface-receiver.
pin 73: NU : - : Not in use.
pin 74: NU : - : Not in use.
pin 75: NU : - : Not in use.
pin 76: NU : - : Not in use.
pin 77: NU : - : Not in use.
pin 78: NU : - : Not in use.
pin 79: NU : - : Not in use.
pin 80: NU : - : Not in use.
pin 81: NU : - : Not in use.
pin 82: NU : - : Not in use.
pin 83: SYS P 1 : O : Power supply control signal output.
pin 84: SYS P 2 : O : Power supply control signal output.
pin 85: NU : - : Not in use.
pin 86: NU : - : Not in use.
pin 87: NU : - : Not in use.
pin 88: NU : - : Not in use.
pin 89: NU : - : Not in use.
pin 90: NU : - : Not in use.
pin 91: NU : - : Not in use.
pin 92: NU : - : Not in use.
pin 93: NU : - : Not in use.
pin 94: SPD : O : Spectrum analyzer data output.
pin 95: NU : - : Not in use.
pin 96: A VSS : - : Analog ground.
pin 97: NU : - : Not in use.
pin 98: Vref : - : Reference voltage
pin 99: A VCC : - : Positive supply voltage for the internal analog section.
pin100: NU : - : Not in use.

■EXPLOODED VIEW • PARTS LIST



Note)Some parts depend on each model.
The model name is specified in the description.

NO.	PART NO.	DESCRIPTION	Q'TY
1	286-9540-00 286-9566-01	SETPLATE(GP-976B) SETPLATE(GP-976E)	1
2	310-1642-04 310-1642-06	UPPER CASE(GP-976B) UPPER CASE(GP-976E)	1
3	311-1731-00	LOWER CASE	1
4	347-3819-00	SPACER	1
5	731-2606-81	TAPTIGHT(M2.6x6)	3
6	731-3006-80	TAPTIGHT(M3x6)	8
7	039-1916-00	MAIN PWB (WITHOUT COMPONENT)	1
8	013-3932-00	SWITCH	1
9	073-0731-01	TERMINAL	2
10	074-1163-03	OUTLET SOCKET(3P)	1

NO.	PART NO.	DESCRIPTION	Q'TY
11	074-1163-11	OUTLET SOCKET(11P)	1
12	074-1194-00	OUTLET SOCKET(CeNET)	2
13	854-9903-00	EXTENSION LEAD	1
14	075-0305-01	JACK(DIGITAL IN)	2
15	075-0336-00	JACK(RCA)	3
16	076-0543-03	PLUG(3P)	1
17	076-0543-11	PLUG(11P)	1
18	103-1266-00	TRANSISTOR(2SD1266)	1
19	331-0162-00	JACK HOLDER	1
20	331-0278-00	CONNECTOR HOLDER	2
21	331-2302-00	CONNECTOR HOLDER	2

■ELECTRICAL PARTS LIST

Main PWB section(B1)

Note)Several different parts of the same reference number are alternative parts.
One of those parts is used in the set.

REF No.	PART No.	DESCRIPTION
C101	166-2201-50	22pF CH
C102	168-1032-55	0.01μF
C103	182-1043-69	50V0.1μF
C104	182-4763-29	10V47μF
C105	168-1045-56	0.1μF
C106	182-4763-19	6.3V47μF
C107	168-1045-56	0.1μF
C109	043-0264-58	1500pF
C110	043-0264-58	1500pF
C111	182-1063-35	16V10μF
C112	182-4763-19	6.3V47μF
C113	168-1045-56	0.1μF
C114	168-1045-56	0.1μF
C115	168-1045-56	0.1μF

REF No.	PART No.	DESCRIPTION
C116	182-1063-39	16V10μF
C118	166-1201-50	12pF CH
C119	168-1045-56	0.1μF
C121	166-1201-50	12pF CH
C123	168-1045-56	0.1μF
C124	182-4763-19	6.3V47μF
C128	168-1045-56	0.1μF
C129	182-1073-39	16V100μF
C134	182-1063-39	16V10μF
C135	168-1045-56	0.1μF
C136	182-1063-35	16V10μF
C137	168-1045-56	0.1μF
C138	182-1063-35	16V10μF
C139	168-1022-55	1000pF

REF No.	PART No.	DESCRIPTION
C140	168-1022-55	1000pF
C141	168-1022-55	1000pF
C151	168-1045-56	0.1μF
C152	182-1063-35	16V10μF
C153	168-1045-56	0.1μF
C154	168-1045-56	0.1μF
C155	182-1063-35	16V10μF
C156	168-1045-56	0.1μF
C157	042-0554-66	16V10μF
C158	042-0554-66	16V10μF
C159	168-1045-56	0.1μF
C160	042-0554-66	16V10μF
C161	168-1045-56	0.1μF
C162	182-1063-35	16V10μF

REF No.	PART No.	DESCRIPTION
C163	182-1063-35	16V10µF
C164	182-1063-35	16V10µF
C165	182-1063-35	16V10µF
C166	043-0264-63	0.01µF
C167	043-0264-63	0.01µF
C168	168-1045-56	0.1µF
C169	182-4763-19	6.3V47µF
C170	166-5611-50	560pF CH
C171	166-5611-50	560pF CH
C172	043-0264-63	0.01µF
C173	043-0264-63	0.01µF
C174	166-5611-50	560pF CH
C175	166-5611-50	560pF CH
C177	182-1063-35	16V10µF
C178	168-1045-56	0.1µF
C179	042-0554-66	16V10µF
C180	042-0554-66	16V10µF
C181	168-1045-56	0.1µF
C182	042-0554-66	16V10µF
C183	168-1045-56	0.1µF
C184	182-1063-35	16V10µF
C185	182-1063-35	16V10µF
C186	182-1063-35	16V10µF
C187	182-1063-35	16V10µF
C188	043-0264-63	0.01µF
C189	043-0264-63	0.01µF
C190	166-5611-50	560pF CH
C191	166-5611-50	560pF CH
C192	043-0264-63	0.01µF
C193	043-0264-63	0.01µF
C194	168-1045-56	0.1µF
C195	182-4763-19	6.3V47µF
C196	166-5611-50	560pF CH
C197	166-5611-50	560pF CH
C199	182-1063-35	16V10µF
C201	182-1063-39	16V10µF
C202	182-1063-39	16V10µF
C205	182-1043-65	50V0.1µF
C206	182-1043-65	50V0.1µF
C207	168-1045-56	0.1µF
C208	168-1045-56	0.1µF
C209	168-1022-55	1000pF
C210	182-1053-65	50V1µF
C211	182-1053-65	50V1µF
C212	182-1053-65	50V1µF
C213	182-1053-65	50V1µF
C214	182-1063-35	16V10µF
C215	182-1063-35	16V10µF
C216	168-1045-56	0.1µF
C217	168-1045-56	0.1µF
C218	168-1045-56	0.1µF
C219	168-1045-56	0.1µF
C221	168-3312-55	330pF
C222	166-2701-50	27pF CH
C223	166-2701-50	27pF CH
C224	166-2701-50	27pF CH
C225	166-2701-50	27pF CH
C226	166-2701-50	27pF CH
C227	166-2701-50	27pF CH
C228	166-2701-50	27pF CH
C229	166-2701-50	27pF CH
C230	168-1032-55	0.01µF
C231	168-1032-55	0.01µF
C232	168-1032-55	0.01µF
C233	166-1011-50	100pF CH
C301	168-1045-56	0.1µF
C302	168-1045-56	0.1µF
C305	184-2283-31	16V 2200µF
C306	182-3353-65	50V3.3µF
C307	182-3353-65	50V3.3µF
C308	182-3353-65	50V3.3µF
C309	182-3353-65	50V3.3µF
C310	182-4753-59	35V4.7µF
C311	182-1063-39	16V10µF

REF No.	PART No.	DESCRIPTION
C312	182-1073-35	16V100µF
C313	182-1063-39	16V10µF
C314	168-1045-56	0.1µF
C316	168-1045-56	0.1µF
C317	182-1063-39	16V10µF
C318	184-2273-19	6.3V220µF
C319	168-1045-56	0.1µF
C320	168-1045-56	0.1µF
C321	168-3332-78	0.033µF
C322	182-1063-35	16V10µF
C324	168-1022-55	1000pF
C325	184-2273-29	10V220µF
C326	182-1063-39	16V10µF
C327	184-2273-19	6.3V220µF
C328	168-1045-56	0.1µF
C329	168-1045-56	0.1µF
C330	182-1063-39	16V10µF
C331	168-2232-55	0.022µF
C332	182-2263-35	16V22µF
C333	168-2232-55	0.022µF
C334	182-2263-35	16V22µF
C335	168-1045-56	0.1µF
C336	184-3373-29	10V330µF
C337	166-2211-50	220pF CH
C338	168-1045-56	0.1µF
C341	182-1073-35	16V100µF
C342	168-1045-56	0.1µF
C343	168-1022-55	1000pF
C344	168-2232-55	0.022µF
C345	182-1063-35	16V10µF
C346	168-2232-55	0.022µF
C347	182-2263-35	16V22µF
C348	168-1045-56	0.1µF
C349	168-1022-55	1000pF
C350	182-4763-25	10V47µF
C351	043-0311-92	10V0.22µF
C352	042-0554-66	16V10µF
C353	168-1022-55	1000pF
C354	182-4763-25	10V47µF
C355	043-0311-92	10V0.22µF
C356	042-0554-66	16V10µF
C357	168-1045-56	0.1µF
C358	182-1063-35	16V10µF
C359	182-1063-35	16V10µF
C360	042-0554-57	6.3V47µF
C361	182-1063-35	16V10µF
C362	182-1063-35	16V10µF
C363	042-0554-57	6.3V47µF
C364	182-1063-35	16V10µF
C365	168-1022-55	1000pF
C366	168-1022-55	1000pF
C367	043-0311-92	10V0.22µF
C368	043-0311-92	10V0.22µF
C369	182-2253-65	50V2.2µF
C370	182-2253-65	50V2.2µF
C371	182-1063-35	16V10µF
C372	182-1063-35	16V10µF
C373	168-1032-55	0.01µF
C374	168-1032-55	0.01µF
C375	168-1032-55	0.01µF
C376	168-1032-55	0.01µF
C377	168-1032-55	0.01µF
C378	168-1032-55	0.01µF
C379	182-3353-65	50V3.3µF
C380	182-3353-65	50V3.3µF
C381	182-3353-65	50V3.3µF
C382	182-3353-65	50V3.3µF
C383	182-4753-55	35V4.7µF
C384	182-4753-55	35V4.7µF
C385	168-1045-56	0.1µF
C386	168-1045-56	0.1µF
C387	172-4741-15	0.47µF
C390	168-1022-55	1000pF
C391	182-1063-35	16V10µF

REF No.	PART No.	DESCRIPTION
C392	182-1063-35	16V10µF
C394	168-3332-78	0.033µF
C395	168-3332-78	0.033µF
C396	168-3332-78	0.033µF
C397	168-3332-78	0.033µF
C398	168-3332-78	0.033µF
C399	168-3332-78	0.033µF
C401	182-1063-35	16V10µF
C402	182-1063-35	16V10µF
C403	182-1063-35	16V10µF
C404	182-1063-35	16V10µF
C405	168-1045-56	0.1µF
C406	168-1045-56	0.1µF
C407	168-1045-56	0.1µF
C408	182-1063-35	16V10µF
C409	182-1063-35	16V10µF
C410	182-1063-35	16V10µF
C411	182-1063-35	16V10µF
C412	168-1045-56	0.1µF
C418	182-1063-35	16V10µF
C419	182-1063-35	16V10µF
C420	182-1063-35	16V10µF
C421	182-1063-35	16V10µF
C422	182-1063-35	16V10µF
C423	182-1063-35	16V10µF
C425	182-1063-39	16V10µF
C426	182-1063-39	16V10µF
C427	182-1063-35	16V10µF
C428	168-1045-56	0.1µF
C430	042-0554-66	16V10µF
C431	042-0554-66	16V10µF
C432	042-0554-66	16V10µF
C433	042-0554-66	16V10µF
C434	182-1063-35	16V10µF
C435	182-1063-35	16V10µF
C436	043-0264-56	270pF
C437	043-0264-56	270pF
C438	043-0264-56	270pF
C439	043-0264-56	270pF
C440	043-0264-56	270pF
C441	043-0264-56	270pF
C442	166-2701-50	27pF CH
C443	166-2701-50	27pF CH
C444	166-2701-50	27pF CH
C445	166-2701-50	27pF CH
C446	166-2701-50	27pF CH
C447	166-2701-50	27pF CH
C448	168-1022-55	1000pF
C449	172-4741-15	0.47µF
C454	042-0559-00	5.5V 0.1F
C455	168-1045-56	0.1µF
C456	182-4763-29	10V47µF
C457	168-1045-56	0.1µF
C462	182-3353-65	50V3.3µF
C463	182-3353-65	50V3.3µF
C464	168-1045-56	0.1µF
C471	168-1045-56	0.1µF
C472	172-3341-15	0.33µF
D101	001-0516-90	MA111
D101	001-0517-90	1SS355
D101	001-0580-90	1SS352
D301	001-0516-90	MA111
D301	001-0517-90	1SS355
D301	001-0580-90	1SS352
D302	001-0516-90	MA111
D302	001-0517-90	1SS355
D302	001-0580-90	1SS352
D303	001-0516-90	MA111
D303	001-0517-90	1SS355
D303	001-0580-90	1SS352
D304	001-0516-90	MA111
D304	001-0517-90	1SS355
D304	001-0580-90	1SS352
D310	001-0330-90	2SS119

REF No.	PART No.	DESCRIPTION
D310	001-0294-90	1SS133T
D311	001-0504-36	HZS7A1L
D312	001-0347-32	MA4056MTA
D312	001-0346-32	MTZJ5.6B
D312	001-0401-32	HZS6B1-TJ
D313	001-0529-69	MA8180-M
D313	001-0575-69	DTZ18B
D315	001-0529-69	MA8180-M
D315	001-0575-69	DTZ18B
D316	001-0504-32	HZS6A3L
D317	001-0501-90	DINS4
D317	001-0502-92	1FWJ43
D318	001-0516-90	MA111
D318	001-0517-90	1SS355
D318	001-0580-90	1SS352
D330	001-0516-90	MA111
D330	001-0517-90	1SS355
D330	001-0580-90	1SS352
D331	001-0516-90	MA111
D331	001-0517-90	1SS355
D331	001-0580-90	1SS352
D332	001-0330-90	2SS119
D332	001-0294-90	1SS133T
FIL101	060-3102-91	NFM51R00P206
FIL102	060-3102-91	NFM51R00P206
FIL302	060-3104-90	NFM41P11C204
FIL303	060-3113-95	NFM2012R13C102R
IC101	051-6327-08	LC89051VD
IC102	051-0350-93	NJM4558M
IC103	051-0350-93	NJM4558M
IC104	051-6323-28	AK5352VF
IC105	051-1443-09	TC7WU04F
IC106	051-6331-00	D77614FT
IC107	051-9308-10	HM5118160CTT-6
IC107	051-9308-31	GM71C18160CT-6
IC108	051-6371-08	VSOP20
IC109	051-6371-08	VSOP20
IC110	051-6370-08	AK4380VT
IC111	051-3015-90	NJM4580M
IC112	051-3015-90	NJM4580M
IC113	051-1378-08	TC7S04F
IC117	051-0350-93	NJM4558M
IC118	051-0350-93	NJM4558M
IC119	051-5818-90	BA3834F
IC120	051-7233-08	TC7W74F
IC121	051-7212-08	TC74HC157AF
IC301	051-1124-08	TC74HC153AF
IC303	051-6600-38	CA0008AM
IC304	051-0869-58	NJM2103M
IC305	052-7058-00	M30622MCA-E70FP
IC306	051-3605-90	NJM2360AM
IC308	051-5008-90	M62419FP
IC309	051-5003-90	M62409FP
IC310	051-5003-90	M62409FP
IC311	051-3015-90	NJM4580M
IC312	051-3015-90	NJM4580M
IC313	051-0350-93	NJM4558M
IC315	051-3236-90	BA08FP
IC316	051-0350-93	NJM4558M
IC318	051-0350-93	NJM4558M
IC319	051-5407-08	S-80721AN-DJ
IC320	051-7202-08	TC7S32F
J302	075-0336-00	2P RCA
J303	075-0336-00	2P RCA
J304	075-0336-00	2P RCA
L101	010-2285-61	BLM21P300
L102	010-2285-61	BLM21P300
L104	010-2285-58	BLM21A102FPB
L105	010-2285-58	BLM21A102FPB
L106	010-2285-58	BLM21A102FPB
L107	010-2285-58	BLM21A102FPB
L114	010-2285-58	BLM21A102FPB
L115	010-2285-58	BLM21A102FPB
L116	010-2285-58	BLM21A102FPB
L117	010-2285-58	BLM21A102FPB
L118	010-2285-58	BLM21A102FPB
L119	010-2285-58	BLM21A102FPB
L120	010-2285-58	BLM21A102FPB
L131	010-2285-56	BLM21B222S
L301	010-6009-80	47μH
L302	010-6009-80	47μH
L304	010-6009-76	22μH
L305	010-6009-73	12μH
L306	010-2200-02	270μH
L307	010-6009-73	12μH
L308	010-6009-76	22μH
L322	010-2285-58	BLM21A102FPB
L324	010-2285-58	BLM21A102FPB
L325	010-2285-58	BLM21A102FPB
L327	010-2285-58	BLM21A102FPB
L328	010-2285-58	BLM21A102FPB
L330	010-2285-58	BLM21A102FPB
L332	009-0470-05	CHOKE
L501	010-2285-56	BLM21B222S
L502	010-2285-56	BLM21B222S
L503	010-2285-56	BLM21B222S
L504	010-2285-56	BLM21B222S
L505	010-2285-56	BLM21B222S
L506	010-2285-56	BLM21B222S
L507	010-2285-56	BLM21B222S
L508	010-2285-56	BLM21B222S
L509	010-2285-56	BLM21B222S
P301	075-0305-01	OPT-DIGITAL
P302	075-0305-01	OPT-DIGITAL
P310	076-0543-11	11P
P311	076-0543-03	3P
P501	074-1163-11	11P
P502	074-1194-00	13P DIN
P505	074-1194-00	13P DIN
P507	074-1163-03	3P
Q301	191-1240-00	2SB1240
Q302	125-2031-92	MUN2211
Q302	125-2004-92	RN1402
Q305	193-1858-00	2SD1858
Q306	103-1266-00	2SD1266
Q307	190-1037-00	2SA1037
Q307	190-1162-00	2SA1162
Q308	125-2031-92	MUN2211
Q308	125-2004-92	RN1402
Q310	125-2031-92	MUN2211
Q310	125-2004-92	RN1402
Q311	193-1858-00	2SD1858
Q312	190-1037-00	2SA1037
Q312	190-1162-00	2SA1162
Q313	125-2031-92	MUN2211
Q313	125-2004-92	RN1402
Q314	125-2031-92	MUN2211
Q314	125-2004-92	RN1402
Q315	125-2031-92	MUN2211
Q315	125-2004-92	RN1402
Q316	190-1037-00	2SA1037
Q316	190-1162-00	2SA1162
Q317	125-4001-90	XN1504
Q318	125-4001-90	XN1504
Q319	125-0002-95	RN2405
Q319	125-0014-95	DTA123JK
Q320	125-2031-92	MUN2211
Q320	125-2004-92	RN1402
Q321	193-1306-00	2SD1306
Q321	192-3326-00	2SC3326
Q322	193-1306-00	2SD1306
Q322	192-3326-00	2SC3326
Q323	193-1306-00	2SD1306
Q323	192-3326-00	2SC3326
Q324	193-1306-00	2SD1306
Q324	192-3326-00	2SC3326
Q325	193-1306-00	2SD1306
Q325	192-3326-00	2SC3326
Q326	193-1306-00	2SD1306
Q326	192-3326-00	2SC3326
Q327	125-0002-93	RN2403
Q327	125-0001-92	UN2112
Q328	125-2031-92	MUN2211
Q328	125-2004-92	RN1402
Q329	125-4001-90	XN1504
Q330	190-1037-00	2SA1037
Q330	190-1162-00	2SA1162
Q331	125-2031-92	MUN2211
Q331	125-2004-92	RN1402
Q332	125-2031-92	MUN2211
Q332	125-2004-92	RN1402
Q442	193-1306-00	2SD1306
Q442	192-3326-00	2SC3326
Q443	125-0002-95	RN2405
Q443	125-0014-95	DTA123JK
Q444	125-0002-95	RN2405
Q444	125-0014-95	DTA123JK
Q445	125-0002-95	RN2405
Q445	125-0014-95	DTA123JK
Q446	125-0002-95	RN2405
Q446	125-0014-95	DTA123JK
Q447	125-0002-95	RN2405
Q447	125-0014-95	DTA123JK
Q448	125-0002-95	RN2405
Q448	125-0014-95	DTA123JK
Q449	125-0002-95	RN2405
Q449	125-0014-95	DTA123JK
Q450	125-0002-95	RN2405
Q450	125-0014-95	DTA123JK
Q451	125-0002-95	RN2405
Q451	125-0014-95	DTA123JK
Q452	125-0002-95	RN2405
Q452	125-0014-95	DTA123JK
Q453	125-0002-95	RN2405
Q453	125-0014-95	DTA123JK
Q454	125-0002-95	RN2405
Q454	125-0014-95	DTA123JK
Q455	125-0002-95	RN2405
Q455	125-0014-95	DTA123JK
R101	119-2231-15	1/16W 22kΩ
R102	119-1011-15	1/16W 100Ω
R103	119-5121-15	1/16W 5.1kΩ
R104	119-2431-15	1/16W 24kΩ
R105	032-0140-89	1/4W 47kΩ±1%
R106	032-0140-89	1/4W 47kΩ±1%
R107	032-0140-89	1/4W 47kΩ±1%
R108	032-0140-89	1/4W 47kΩ±1%
R109	032-0140-69	1/4W 16kΩ±1%
R110	032-0140-69	1/4W 16kΩ±1%
R111	032-0140-69	1/4W 16kΩ±1%
R112	032-0140-69	1/4W 16kΩ±1%
R113	119-2421-15	1/16W 2.4kΩ
R114	119-1511-15	1/16W 150Ω
R115	119-1031-15	1/16W 10kΩ
R117	119-1031-15	1/16W 10kΩ
R119	119-1031-15	1/16W 10kΩ
R120	119-1031-15	1/16W 10kΩ
R121	119-2711-15	1/16W 270Ω
R122	119-2711-15	1/16W 270Ω
R123	119-2711-15	1/16W 270Ω
R124	119-3311-15	1/16W 330Ω
R125	119-3311-15	1/16W 330Ω
R126	119-3311-15	1/16W 330Ω
R127	119-3311-15	1/16W 330Ω
R129	119-2711-15	1/16W 270Ω
R130	119-2711-15	1/16W 270Ω
R131	119-2711-15	1/16W 270Ω
R132	119-1051-15	1/16W 1MΩ
R136	119-2711-15	1/16W 270Ω
R137	119-2711-15	1/16W 270Ω
R138	119-2711-15	1/16W 270Ω
R141	119-4731-15	1/16W 47kΩ

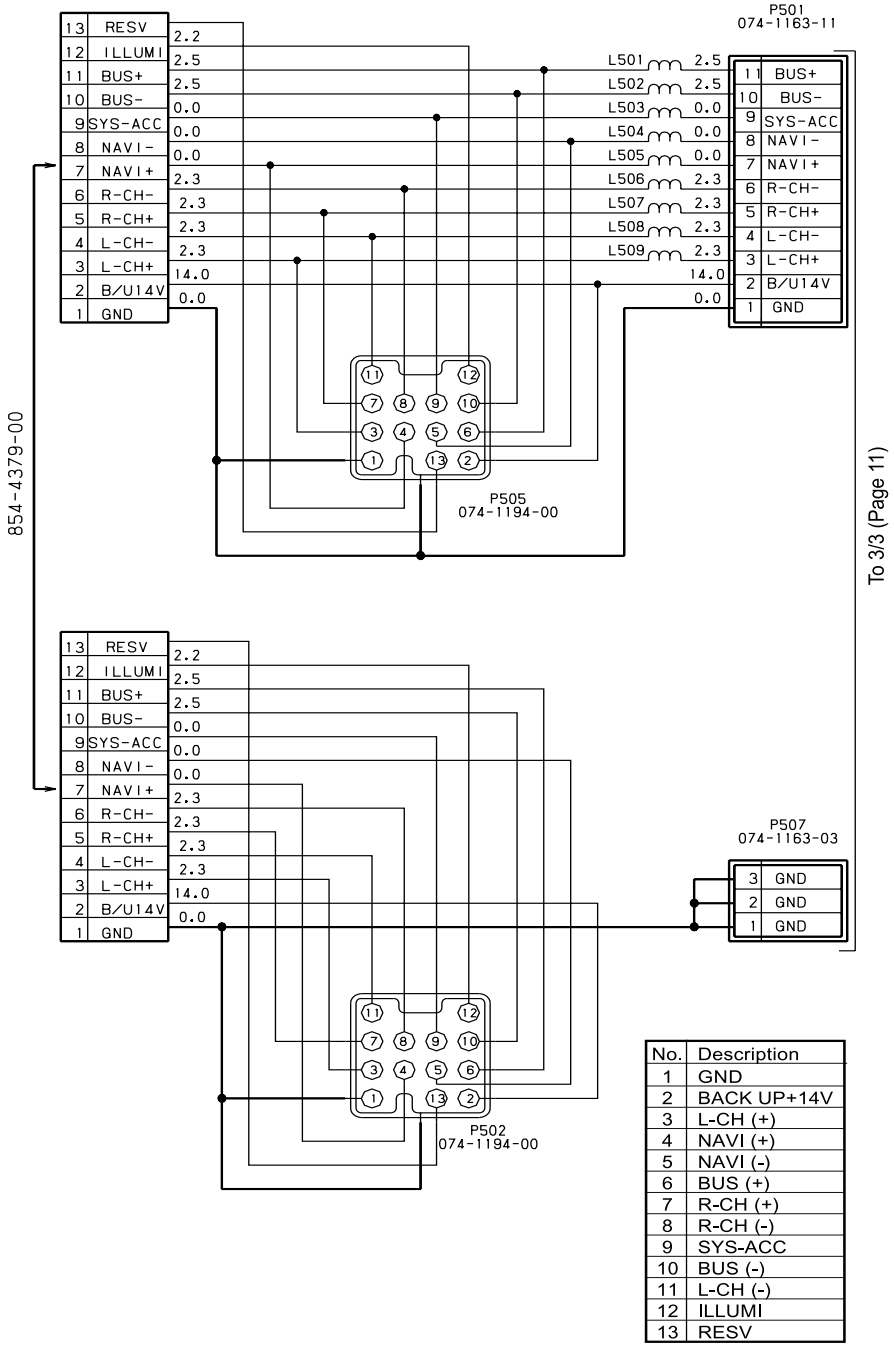
REF No.	PART No.	DESCRIPTION
R143	119-4731-15	1/16W 47kΩ
R152	119-4721-15	1/16W 4.7kΩ
R161	119-5121-15	1/16W 5.1kΩ
R165	119-4731-15	1/16W 47kΩ
R166	119-4731-15	1/16W 47kΩ
R167	119-1051-15	1/16W 1MΩ
R168	119-0000-05	1/16W 0Ω JW
R170	032-0140-50	1/16W 10kΩ±1%
R171	032-0140-50	1/16W 10kΩ±1%
R172	032-0140-50	1/16W 10kΩ±1%
R173	032-0140-98	1/16W 120kΩ±1%
R174	032-0140-98	1/16W 120kΩ±1%
R175	032-0140-50	1/16W 10kΩ±1%
R176	032-0140-50	1/16W 10kΩ±1%
R177	032-0140-50	1/16W 10kΩ±1%
R178	119-8221-15	1/16W 8.2kΩ
R179	032-0140-50	1/16W 10kΩ±1%
R180	032-0140-50	1/16W 10kΩ±1%
R181	032-0140-98	1/16W 120kΩ±1%
R182	032-0140-98	1/16W 120kΩ±1%
R183	119-1031-15	1/16W 10kΩ
R184	119-4731-15	1/16W 47kΩ
R185	119-4731-15	1/16W 47kΩ
R186	032-0140-50	1/16W 10kΩ±1%
R187	032-0140-50	1/16W 10kΩ±1%
R188	032-0140-50	1/16W 10kΩ±1%
R189	119-1021-15	1/16W 1kΩ
R190	119-1021-15	1/16W 1kΩ
R191	032-0140-50	1/16W 10kΩ±1%
R192	032-0140-50	1/16W 10kΩ±1%
R193	032-0140-98	1/16W 120kΩ±1%
R194	032-0140-98	1/16W 120kΩ±1%
R195	032-0140-50	1/16W 10kΩ±1%
R196	119-3901-15	1/16W 390Ω
R197	032-0140-50	1/16W 10kΩ±1%
R198	032-0140-50	1/16W 10kΩ±1%
R199	032-0140-98	1/16W 120kΩ±1%
R200	032-0140-98	1/16W 120kΩ±1%
R201	119-2711-15	1/16W 270Ω
R210	119-1041-15	1/16W 100kΩ
R211	119-1041-15	1/16W 100kΩ
R212	119-1541-15	1/16W 150kΩ
R213	119-1541-15	1/16W 150kΩ
R214	119-1221-15	1/16W 1.2kΩ
R216	119-2711-15	1/16W 270Ω
R217	119-2711-15	1/16W 270Ω
R218	119-2711-15	1/16W 270Ω
R219	119-2711-15	1/16W 270Ω
R220	119-1041-15	1/16W 100kΩ
R221	119-1031-15	1/16W 10kΩ
R222	119-1031-15	1/16W 10kΩ
R224	119-1021-15	1/16W 1kΩ
R305	119-2231-15	1/16W 22kΩ
R306	111-1521-94	1/4WS 1.5kΩ
R308	119-8211-15	1/16W 820Ω
R309	119-8211-15	1/16W 820Ω
R311	119-1821-15	1/16W 1.8kΩ
R313	119-4701-15	1/16W 47Ω
R314	119-4701-15	1/16W 47Ω
R318	119-1821-15	1/16W 1.8kΩ

REF No.	PART No.	DESCRIPTION
R319	119-1031-15	1/16W 10kΩ
R321	111-4711-94	1/4WS 470Ω
R323	119-2231-15	1/16W 22kΩ
R324	119-2231-15	1/16W 22kΩ
R326	119-2731-15	1/16W 27kΩ
R327	119-1031-15	1/16W 10kΩ
R328	119-1541-15	1/16W 150kΩ
R331	119-1031-15	1/16W 10kΩ
R332	119-4711-15	1/16W 470Ω
R333	119-1831-15	1/16W 18kΩ
R334	119-1031-15	1/16W 10kΩ
R335	119-3321-15	1/16W 3.3kΩ
R336	119-1031-15	1/16W 10kΩ
R337	111-2791-94	1/4WS 2.7Ω
R338	111-2791-94	1/4WS 2.7Ω
R339	119-1031-15	1/16W 10kΩ
R340	119-2041-15	1/16W 200kΩ
R341	119-2041-15	1/16W 200kΩ
R342	119-2041-15	1/16W 200kΩ
R343	119-2041-15	1/16W 200kΩ
R345	119-4731-15	1/16W 47kΩ
R346	119-6831-15	1/16W 68kΩ
R347	119-1241-15	1/16W 120kΩ
R348	119-1241-15	1/16W 120kΩ
R349	119-6831-15	1/16W 68kΩ
R350	119-4731-15	1/16W 47kΩ
R351	119-1841-15	1/16W 180kΩ
R352	119-1841-15	1/16W 180kΩ
R353	119-1041-15	1/16W 100kΩ
R354	119-1041-15	1/16W 100kΩ
R355	119-6831-15	1/16W 68kΩ
R356	119-6831-15	1/16W 68kΩ
R357	119-1021-15	1/16W 1kΩ
R358	119-1041-15	1/16W 100kΩ
R359	119-1241-15	1/16W 120kΩ
R362	119-1241-15	1/16W 120kΩ
R363	119-6831-15	1/16W 68kΩ
R366	119-6831-15	1/16W 68kΩ
R367	119-4731-15	1/16W 47kΩ
R368	119-2221-15	1/16W 2.2kΩ
R369	119-4731-15	1/16W 47kΩ
R372	119-4731-15	1/16W 47kΩ
R373	119-1011-15	1/16W 100Ω
R374	119-1021-15	1/16W 1kΩ
R375	119-1021-15	1/16W 1kΩ
R376	119-1021-15	1/16W 1kΩ
R377	119-1021-15	1/16W 1kΩ
R378	119-1031-15	1/16W 10kΩ
R379	119-1031-15	1/16W 10kΩ
R380	119-1031-15	1/16W 10kΩ
R381	119-1031-15	1/16W 10kΩ
R382	119-1021-15	1/16W 1kΩ
R383	119-9111-15	1/16W 910Ω
R384	119-9111-15	1/16W 910Ω
R385	119-9111-15	1/16W 910Ω
R386	119-9111-15	1/16W 910Ω
R389	119-1231-15	1/16W 12kΩ
R390	119-1231-15	1/16W 12kΩ
R391	032-0144-53	1/10W 10kΩ
R392	032-0144-53	1/10W 10kΩ

REF No.	PART No.	DESCRIPTION
R393	032-0144-53	1/10W 10kΩ
R394	032-0144-53	1/10W 10kΩ
R395	119-2731-15	1/16W 27kΩ
R396	119-2731-15	1/16W 27kΩ
R397	119-2731-15	1/16W 27kΩ
R398	119-2731-15	1/16W 27kΩ
R399	119-3031-15	1/16W 30kΩ
R400	119-3031-15	1/16W 30kΩ
R401	119-1021-15	1/16W 1kΩ
R402	119-1021-15	1/16W 1kΩ
R403	119-4731-15	1/16W 47kΩ
R404	119-1011-15	1/16W 100Ω
R405	119-2221-15	1/16W 2.2kΩ
R406	119-1041-15	1/16W 100kΩ
R407	119-3311-15	1/16W 330Ω
R408	119-1021-15	1/16W 1kΩ
R409	119-1021-15	1/16W 1kΩ
R410	119-3311-15	1/16W 330Ω
R411	119-3311-15	1/16W 330Ω
R412	119-1021-15	1/16W 1kΩ
R413	119-1021-15	1/16W 1kΩ
R414	119-3311-15	1/16W 330Ω
R415	119-3311-15	1/16W 330Ω
R416	119-1021-15	1/16W 1kΩ
R417	119-1021-15	1/16W 1kΩ
R418	119-3311-15	1/16W 330Ω
R419	119-2231-15	1/16W 22kΩ
R420	119-2231-15	1/16W 22kΩ
R421	119-2231-15	1/16W 22kΩ
R422	119-2231-15	1/16W 22kΩ
R423	119-2231-15	1/16W 22kΩ
R424	119-2231-15	1/16W 22kΩ
R425	119-4731-15	1/16W 47kΩ
R431	119-1031-15	1/16W 10kΩ
R432	119-2711-15	1/16W 270Ω
R433	119-2711-15	1/16W 270Ω
R434	119-2711-15	1/16W 270Ω
R435	119-2711-15	1/16W 270Ω
R436	119-2711-15	1/16W 270Ω
R440	119-1031-15	1/16W 10kΩ
R441	119-3321-15	1/16W 3.3kΩ
R445	032-0140-89	1/4W 47kΩ±1%
R446	032-0140-89	1/4W 47kΩ±1%
R447	032-0140-50	1/16W 10kΩ±1%
R448	032-0140-50	1/16W 10kΩ±1%
R449	119-1031-15	1/16W 10kΩ
R450	119-5621-15	1/16W 5.6kΩ
R451	119-1021-15	1/16W 1kΩ
R452	119-1031-15	1/16W 10kΩ
R453	119-5621-15	1/16W 5.6kΩ
R455	119-5631-15	1/16W 56kΩ
R456	119-5631-15	1/16W 56kΩ
R457	119-4731-15	1/16W 47kΩ
R458	119-4731-15	1/16W 47kΩ
R459	119-4731-15	1/16W 47kΩ
R462	119-4731-15	1/16W 47kΩ
S301	013-3932-00	SKHHLN
X101	061-3049-00	11.2896MH
X301	060-1505-50	10MHz

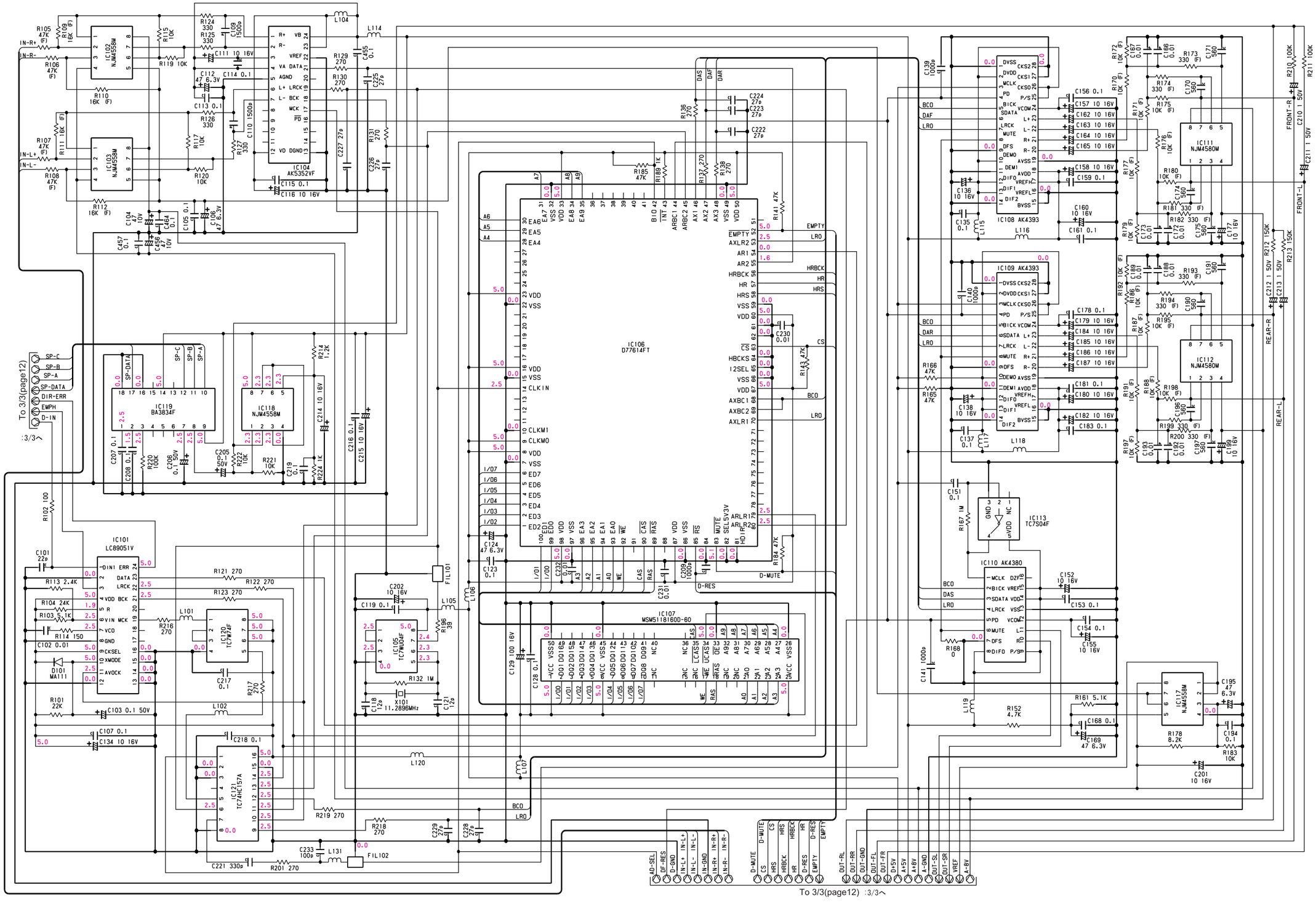
■ CIRCUIT DIAGRAM

Main PWB section 1/3 (B1)

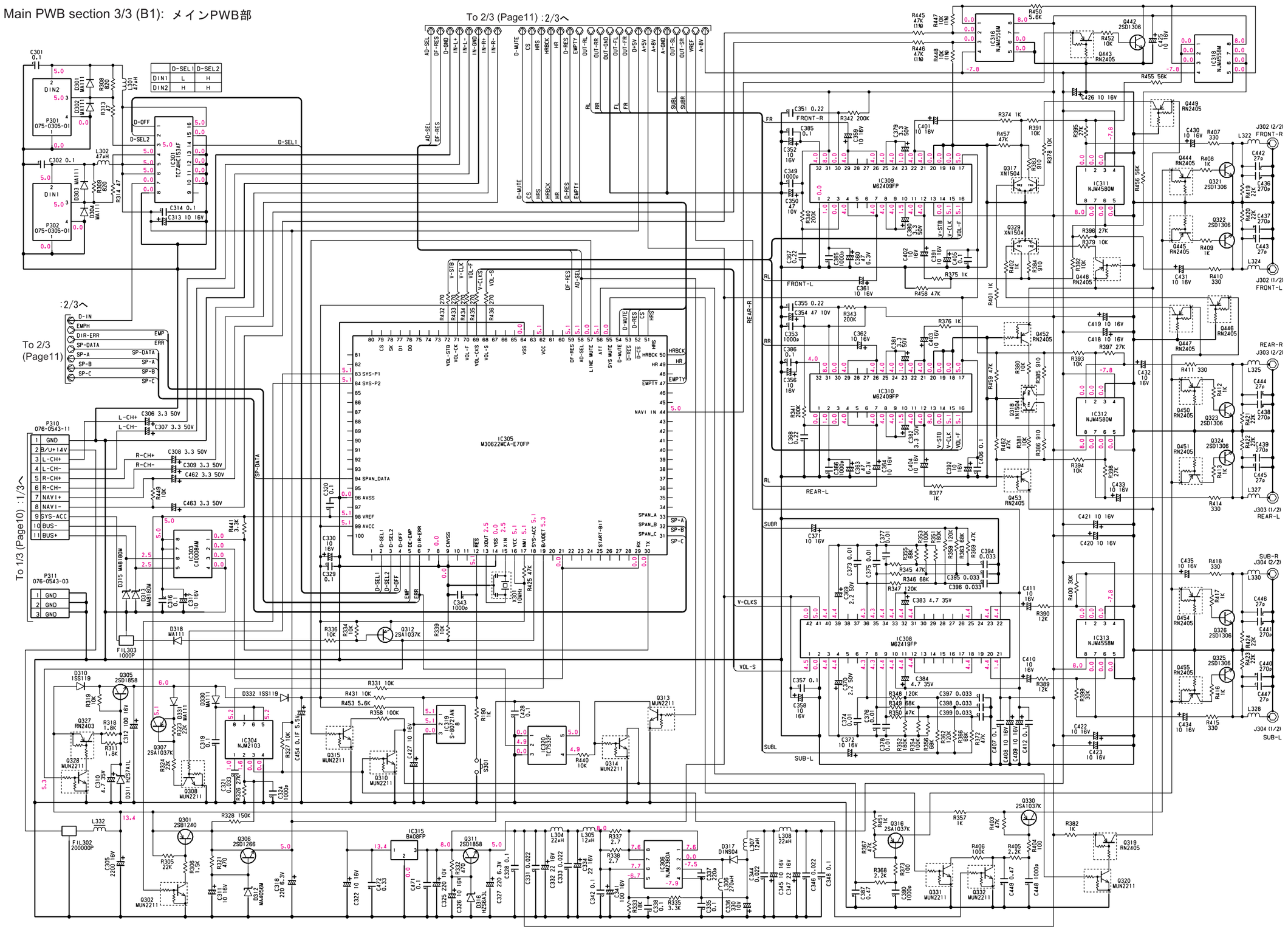


No.	Description
1	GND
2	BACK UP+14V
3	L-CH (+)
4	NAVI (+)
5	NAVI (-)
6	BUS (+)
7	R-CH (+)
8	R-CH (-)
9	SYS-ACC
10	BUS (-)
11	L-CH (-)
12	ILLUMI
13	RESV

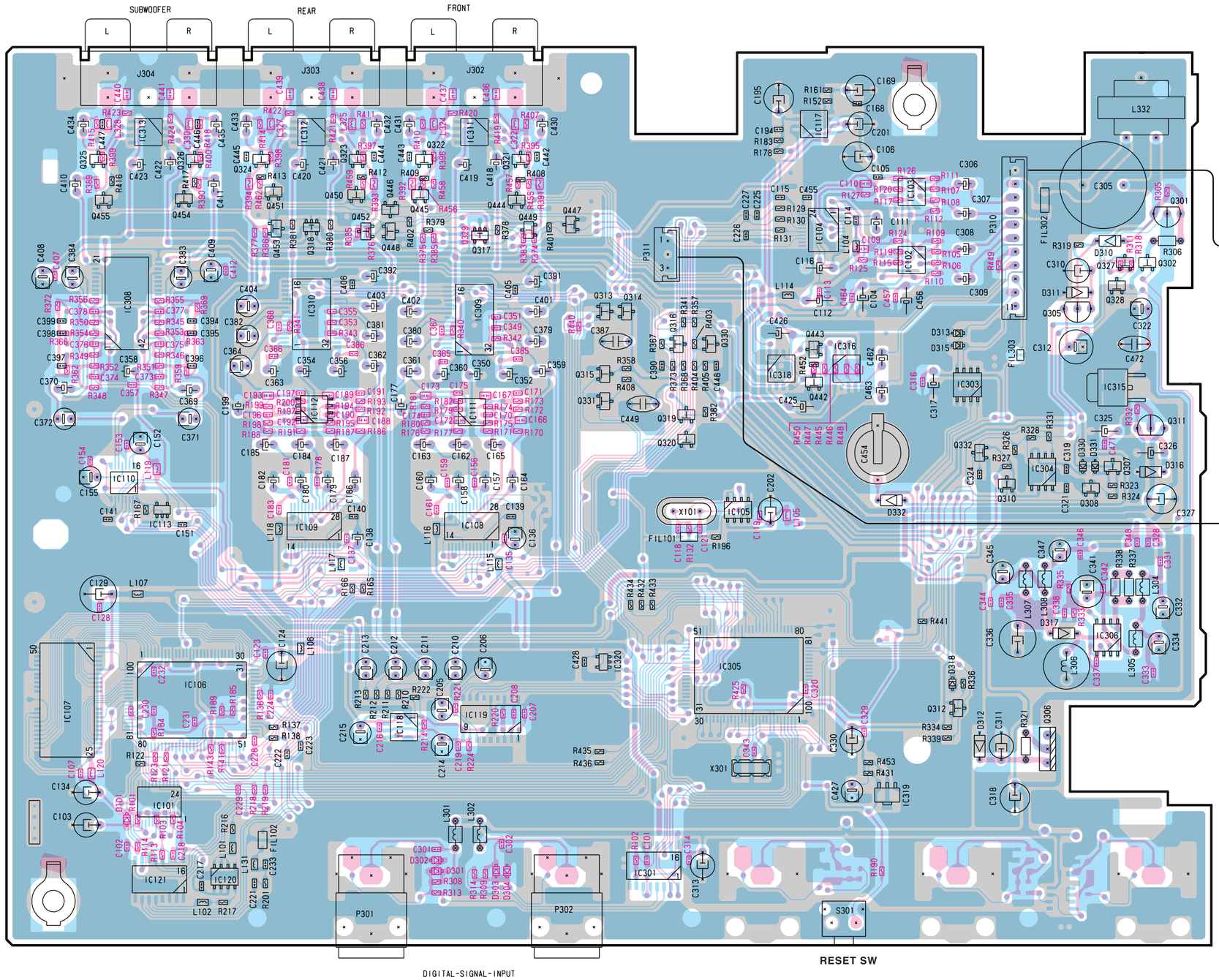
Main PWB section 2/3 (B1): メインPWB部



Main PWB section 3/3 (B1): メインPWB部



■ PRINTED WIRING BOARD : プリント基板図 Main PWB section (B1) : メインPWB部



No.	Description
1	GND
2	BACK UP+14V
3	L-CH (+)
4	NAVI (+)
5	NAVI (-)
6	BUS (+)
7	R-CH (+)
8	R-CH (-)
9	SYS-ACC
10	BUS (-)
11	L-CH (-)
12	ILLUMI
13	RESV

IC	107	110	308	313	121	101	113	106	120	310	312	109	112	118	111	108	311	309	119	320	301	105	305	318	117	104	316	319	102	103	303	304	306	315
0	455	325	454	326	324	453	451	318	450	323	452	448	446	445	322	329	317	444	449	321	160	447	313	331	315	314	316	320	319	330	442	443	312	332	310	306	305	308	307	328	327	302	311	301